CHAPTER 10

A Biological Warfare Wake-Up Call: Prevalent Myths and Likely Scenarios

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> *Yet, this is still a dangerous world, a less certain, a less predictable one… Many have chemical and biological weapons. Most troubling of all, the list of these countries includes some of the world's least-responsible states.*
>
> --President George W. Bush [1]

The likelihood that biological weapons will be used against our nation continues to rise. Many in the recent past have considered the talk of such horrific weapons as only hype to justify funding for certain programs for DOD, other governmental agencies, or government contractors. The stark reality of September 11, 2001 when hijacked airliners were used as missiles, and the anthrax attacks that followed, have changed that perception for many. However, since we have not yet suffered a mass casualty biological warfare (BW) event there are others that still dismiss the scenario as highly unlikely.

If this view is persuasive to U.S. decision-makers it will impede the nation's ability to prepare for or prevent such an event. Until very recently, the lack of focus on this subject had resulted in a lack of appropriate funding and accountability. There are six important myths that have caused some senior military and other government leaders to develop an inappropriate view of this threat.

It would be valuable to those that recognize the nation's vulnerability to BW to know the most likely scenarios we should expect

to encounter. Such informed speculations and visualization allows us to prepare before the event or possibly even to prevent it. This chapter describes six common myths about BW and three of the most likely future BW scenarios we may face.

Why Postulate?

> *The tendency in our planning is to confuse the unfamiliar with the improbable. The contingency we have not considered seriously looks strange; what looks strange is thought improbable; what is improbable need not be considered seriously.*
>
> -- Thomas C. Schelling[2]

The United States has limited funds to spend on social and military programs. The military budget is currently 3 percent of the U.S. Gross National Product (GNP) as compared to 6 percent of the GNP during the late 1980s.[3] The most devastating terrorist attack ever perpetrated against the United States on September 11, 2001 not only cost many lives but the economic impact exceeds hundreds of billions of dollars in direct replacement costs, lost revenues, and costly response efforts. Yet, the human impact and economic impact of September 11, 2001 will be dwarfed if adversaries effectively deploy mass casualty biological weapons against the United States. Unless we focus appropriate dollars and a coherent national plan to prepare for, or better yet, prevent such actions, the United States likely will, suffer an enormous economic impact that could even cause our demise as a superpower.

Will There Really be an Attack?

There are at least six reasons that explain why individuals (including senior civilian and military leaders) do not believe a mass casualty BW attack will occur. These individuals have given little credence to the BW threat because they believe one of these six false assumptions or myths.

Myth One: There never really has been a significant BW attack.

This contention is blatantly counter to historical fact. On the contrary, even before the Fall 2001 anthrax terrorism in the United States, biological warfare and bioterrorism have occurred on multiple previous occasions. This makes it plausible that they will again be used in the future. Additionally, more countries today have active BW programs than at any other time.

Military organizations have used biological weapons many times. One BW event occurred in 1346 when the Mongols used plague (*Yersinia pestis*) at the Battle of Kaffa. More recently during the French and Indian war, the British used smallpox (*Variola*) against the Delaware Indians and also are alleged to have used smallpox against American Revolutionary War forces under George Washington's command.[4] The Germans used anthrax (*Bacillus anthracis*) and glanders (*Pseudomonas mallei*) against the horses and mules of the United States Army and its allies in WW I. The Japanese used typhoid (*Salmonella typhi*) in WW II in direct attacks on approaching Russian forces.[5] They also used over 16 different BW agents (plague, anthrax, etc.) on Chinese forces and citizens, United States prisoners of war, British detainees, and others. Ken Alibek, former head of the civilian branch of the USSR offensive biological program, has unearthed information that leads him to believe that the Soviet Army may have used tularemia (*Francisella tularensis*) to halt the oncoming German Army in WW II.[6] The Textbook for Military Medicine, published in 1997, states there were an estimated 10,923 deaths from chemical and biological warfare (CBW) use by the Soviet Union in Afghanistan, Laos, and Kampuchea (Cambodia).[7] And, in 2001 the United States Senate and other United States Government offices were attacked through the mail system by letters filled with lethal anthrax spores milled to the 1-5 micron size that can inflict death from inhalation. The fact is, biological warfare has been an accepted practice for a number of states for a long time.

Myth Two: The United States has never been attacked by a BW agent.

This was a common assumption held by many before the recent spate of anthrax incidents. The Fall 2001 anthrax attacks on United States

Senate offices, news agencies, and other targets should shatter this myth. Counting the 2001 anthrax attacks, there are at least six known instances where BW has been used against United States citizens or resources. In addition to the four already mentioned: the alleged British use of smallpox in the Revolutionary War, the Germans use of glanders against United States horses and mules in WW I, the Japanese use of multiple biological agents against their foes in WW II, and the recent anthrax attacks in the United States, a fifth example is the Aum Shinrikyo Cult's failed attack on two U. S. naval bases, Yokosuka and Yokohama, with botulinum toxin in 1990.[8] A sixth occurred in 1984 when the Bhagwan Shree Rajneesh cult contaminated 10 restaurant salad bars in Oregon with salmonella, infecting at least 750 local citizens.[9] This BW attack, like the naval base attacks, was not discovered until several years after the event. These last two examples lend credence to the possibility, as proliferation experts such as Seth Carus from National Defense University, agree the United States may have unknowingly fallen victim to other BW attacks in the past that we know nothing about.[10]

Myth Three: You have to be extremely intelligent, highly educated, and well funded to grow, weaponize, and deploy a BW agent.

An individual's (or group's) financial status or brilliance is probably no longer a major roadblock to acquiring a significant BW capability. Dr. Tara O'Toole, Deputy Director, Center for Civilian Biodefense Studies at Johns Hopkins University, believes we have probably crossed over the threshold from "too difficult" to accomplish to "doable by a determined individual or group."[11] It is true that there are certain technical hurdles in producing and weaponizing BW agents, but there are many thousands of highly educated microbiologists or other health science professionals worldwide that are capable of growing, weaponizing, and employing a BW agent. Much of the technical information is now readily available on the Internet, in libraries, and through mail-order channels that provide "how-to" manuals. For example, Steve Priesler, with a degree in chemistry, has written such a manual, available on the Internet for only $18.[12] This manual, titled Silent Death by "Uncle Fester," tells the reader where to find agents such as *Bacillus anthracis* and *Clostridium*

botulinum, how to grow them, how to weaponize them, and how to employ the agents to kill small or large numbers of people depending on your goal.

Myth Four: Biological Warfare must be too difficult because, when it has been tried, it has failed.

Most of the biological warfare attempts mentioned in this chapter resulted in deaths or casualties. However, not all attempts in the past have been successful. For example, the Aum Shinrikyo sprayed two United States naval bases in Japan in 1990, but this was not discovered until 1995 after incarceration of its leaders, when some of the cult leaders confessed. It is not known exactly why their attack failed, but there are thousands of United States sailors and dependants who never knew they were one breath away from dying if the Aum Shinrikyo had been a bit more skilled. While this Japanese cult may have failed to master the technological hurdles in the early 1990s, over a half a century earlier, several nations had already learned a great deal about how to effectively make and use these weapons. The Japanese began their BW program in the early 1930s and used it against their opponents in WW II. The United States, Great Britain and the USSR started BW programs during the 1930s and 1940s. These countries all were able to develop significantly large and potent BW programs. Indeed, basic BW technology has been proven and has been around for 60 years. This was long before the era of genetic engineering and the mapping of genomes. Although some of the secrets from these programs were probably not readily available to the Aum Shinrikyo cult, the decade of the 1990s brought with it a proliferation of information and biotechnological advances. Now in the 21st Century technological barriers are no longer as formidable as they once were. Today it is thought by some experts that a determined group or individual can independently develop their own BW mass casualty weaponry.[13] To say "it has not been successful," based on the Aum Shinrikyo's inability to kill Americans with botulinum toxin or the Aum's other failed attempts to kill Japanese with anthrax,[14] is a weak argument, especially in light of all the previously successful BW attacks in past conflicts.

Myth Five: There are moral restraints that have and will keep BW agents from being used.

Although past history does not validate this argument, it is true that most states in the 20th century have generally avoided the use of BW agents. For example, the United States had an offensive BW program from 1942 to 1969, but it never used BW agents. The USSR had enough BW agents weaponized to kill the world several times over and yet exhibited restraint. It may be that the various political, military and moral constraints against BW use have prevented biological warfare on a mass scale to the present time, but it appears that we are now entering a new era. Jessica Stern, in The Ultimate Terrorists, outlines four techniques of "moral disengagement" that individuals and groups have used to justify their use of mass casualty weapons.[15] On 26 February 1993, terrorist Ramzi Yousef and several other Muslim terrorists exploded a bomb intended to topple the World Trade Center twin towers and kill at least 250,000.[16] The blast, although not completely successful, killed six, injured more than 1,000, and inflicted costs in excess of $600,000,000.[17] On 19 April 1995, Timothy McVeigh committed the worst act of domestic terrorism by an American citizen when he bombed the Alfred P. Murrah Federal Building in Oklahoma City. More than 550 people were targeted and the resulting tragedy left 168 dead and hundreds of others wounded.[18,19] On 11 September 2001, international terrorists destroyed the twin towers of the World Trade Center ruined over 20 adjacent buildings, and significantly damaged the Pentagon by hijacking and crashing U.S. commercial airliners into these icons of American society.

In less than two short hours these brutal acts of terror killed approximately 3,000 innocent civilians and military personnel while injuring many thousands and bringing United States air travel to a temporary and very costly halt.[20]

We can look to the emergence of organizations such as Al-Qa'ida, Osama bin Laden's group, and see that previous moral constraints for massive civilian deaths are no longer applicable. They have launched a "holy war" against the United States, and are not reticent to inflict heavy casualties on United States citizens even if it entails the loss of their own lives. In fact, according to the "holy war" paradigm propagated by bin Laden, great honor is supposed to accrue to those who die killing many "infidels." Thus, "morality" can be

marshaled as a reason both to limit BW use or to advocate mass killings, depending on the decision-maker's values and perspectives.

Myth Six: The long incubation period required for BW agents before onset of symptoms makes BW useless to users.

As stated earlier, there have already been multiple BW attacks. To a savvy biological weaponeer the incubation period can be used as an advantage rather than a disadvantage. Two scenarios illustrate this. Scenario one is an anthrax attack on a military installation that could render it nonfunctional within 72 hours. The first clinical cases of anthrax would probably manifest themselves around 24 hours, with subsequent case numbers increasing rapidly. If anthrax was used, conventional military attacks on the installation around 3 to 4 days after the BW attack would likely be successful because defenders would be laid low by the disease. Moreover, the attackers would not have to be overly concerned about significant secondary infections from their infected adversaries or large amounts of residual spores in the environment because of the nature of the *Bacillus anthracis* organism.

Scenario two involves an adversary attacking a population or military installation with Q-Fever (*Coxiella burnetii*). With a 2 to 10 day incubation period the attacker and his followers would have days to escape the area before it was recognized that there even had been an attack. On days 5 to 10 after the attack the adversary could announce this non-lethal weapon was used as a "show of force and resolve" demanding whatever concession they were after. There would be no concern of secondary infection getting back to the adversary or the adversary's allies because Q-Fever is not communicable. Likewise, the low fatality rate would take away the justification of massive retaliation but still leave a heightened fear within the attacked population because of proven vulnerability.

What Would Motivate a BW Attack on the United States?

There are two primary motivations that might drive an adversary to attack the United States with a BW agent. Either is enough for a nation,

organization, or individual to levy this heavy tax on the United States, but concerns should be particularly heightened when both of these motivations intersect.

The first motivation might be to gradually *erode United States influence* as a world superpower. There are adversaries such as Iraq, Iran, or the Al-Qa'ida organization that desire more influence in their region. They are infuriated that American "infidels" have increased their presence in the Middle East from 3 ships in 1949 to over 200,000 United States military personnel in 2001.[21]

Likewise, there are other emerging economic powers in the world that see the United States in a love/hate relationship. They realize the United States is helping them to become economically sound, but they would ultimately like to take a piece of the economic action from the United States. These nations might want to inflict damage to the United States' economy to, in their mind, level the playing field in a way that would minimize damage to their own economy. The far right wing of this motivation is where religious terrorist groups such Osma bin Laden's Al-Qa'ida declare that they have a religious obligation to destroy the "evil race" in the name of "Allah."

The second motivation could be categorized as *revenge or hate*. At a time when the United States is integral in stimulating the global economy and thereby improving the standard of living for millions in the world, the so-called "transparency" of the U.S. inflames millions around the world with envy often leading to hatred. The United States has 5 percent of the world's population yet uses 24 percent of the global energy.[22] The extravagance of the U.S. is seen by some as the reason for a worldwide moral decay. Often these same individuals may want to inflict revenge because of what they perceive the United States or its "puppet nations" have done to them individually or their family or group. Many of these individuals are taught from childhood to hate the U.S. This prejudice often grows as they see images on television that portray the United States as a drunken, immoral, gluttonous, violent society.

If a nation, group, or individual desires both to *erode United States influence* as a world superpower and is full of *revenge and hate*, there is a synergy produced. This effect would amplify their desire and ability to enlist support financially or otherwise to deliver an effective BW attack. The nation, group, or individual now has a cause where emotion reinforces or even overrides the logic or illogic of such an attack.

Possible Future BW Scenarios

This author believes that three of the most likely BW scenarios that the U.S. and its allies might face in the future are the following:

- An agroterrorist event against the United States;
- A BW attack on U.S. and allied troops in the Middle East;
- A bioterrorist attack against a large population center in the United States or an allied state.

Scenario One: The Agroterrorist Scenario

> *Agricultural targets are "soft targets," or ones that maintain such a low level of security that a terrorist could carry out an attack unobserved. Biological agents are small, inexpensive, and nearly impossible to detect. A terrorist may choose to use BW against agriculture simply because it is the easiest and cheapest way to cause large-scale damage.*
>
> -- Anne Kohnen[23]

As was articulated by Mark Wheelis, a senior microbiologist at University of California, Davis, many of the moral constraints that might inhibit an adversary can be overcome using agroterrorism.[24] By effectively inflicting damage to the United States agricultural industry with three to five BW agents over a few years, the U.S. economy could become chaotic. For example, the United Kingdom suffered a severe disruption in day-to-day life in 2001 when foot-and-mouth disease broke out, forcing the slaughter of hundreds of thousands of livestock. Estimated cleanup and economic loss is assumed to reach $30 to $60 billion.[25] Belgium suffered an apparent agroterrorist event when dioxin was discovered in chicken feed.[26] This resulted in boycotts across Europe and Asia of Belgian meat products that cost their economy nearly $1 billion.[27] Such an incident in the United States could potentially jeopardize $140 billion in pork, beef, and poultry exports yearly.[28] Table 1 is a chart from the Monterey Institute of International Studies of certain nations and a breakout of some of their offensive agricultural BW capabilities.

Table 1. States with Past and Present Agricultural BW Capabilities

STATE	STATUS	DATES	DISEASE	COMMENTS
Canada	Former	1941-60s	anthrax, Rinderpest	Exact date of project termination unclear
Egypt	Probable	1972-present	anthrax, brucellosis, glanders, psittacosis, Eastern equine encephalitis	
France	Former	1939-72	potato beetle, Rinderpest	Exact date of project termination unclear
Germany	Former	1915-17, 1942-45	anthrax, foot-and-mouth disease, glanders, potato beetle, wheat fungus	In WWII experimented w/ turnip weevils, antler moths, potato stalk rot/tuber decay, & misc. anti-crop weeds
Iraq	Known	1980s-present	aflatoxin, anthrax, camelpox, foot-and-mouth disease, wheat stem rust (camel pox may have been surrogate for smallpox)	Believed to retain program elements despite UN disarmament efforts
Japan	Former	1937-45	anthrax, glanders	During WWII experimented with misc. anti-crop fungi, bacteria, nematodes
North Korea	Probable	? - present	anthrax	
Rhodesia (Zimbabwe)	Uncertain/ Former	1978-80	anthrax	Suspicious epidemic of cattle anthrax resulted in 182 human deaths. Some scientists believe govt. forces infected livestock to impoverish rural blacks during last phase of civil war.
South Africa	Former	1980s-93	anthrax	
Syria	Probable	? - present	anthrax	
United Kingdom	Former	1937-60s	anthrax	Exact date of project termination unclear
United States	Former	1943-69	anthrax, brucellosis, Eastern & Western equine encephalitis, foot-and-mouth disease, fowl plague, glanders, late blight of potato, Newcastle disease	psittacosis, rice blast, rice brown spot disease, Rinderpest, Venezuelan equine encephalitis, wheat blast fungus, wheat stem rust
USSR (Russia, Khazakstan, Uzbekistan)	Formerly active; current status unclear	1935-92	African swine fever, anthrax, Avian influenza, brown grass mosaic, brucellosis, contagious bovine pleuropneunomia, contagious ecthyma (sheep), foot-and-mouth disease, glanders, maize rust, Newcastle disease virus, potato virus, psittacosis, rice blast, Rinderpest	Additionally experimented with: rye blast, tobacco mosaic, Venezuelan equine encephalitis, vesicular stomatitis, wheat & barley mosaic streak, wheat stem rust, parasitic insects and insect attractants

Source: Monterey Institute of International Studies, Center for Nonproliferation Studies. *Agro-terrorism: Agriculture Biowarfare: State Programs to Develop Offensive Capabilities*, created October 2000. On-line. Internet, 12 September 2001. Available from http://cns.miis.edu/research/cbw/agprogs.htm. (chart edited for space considerations; see complete chart and extensive footnotes on web page)

One of the benefits of this type of attack is the adversary may never be identified unless he so desires. Since the goal is not to achieve attention, but to promote the demise and inflict pain on the United States, the perpetrators most certainly would enjoy the daily news of turmoil in the United States from a safe distance. They could enjoy watching the successful completion of their plan as the contagious nature of their weapon operated on its own (i.e., *The gift that keeps on giving*...). Before a perpetrator was willing to use this style of BW attack(s) he would have to recognize it might take years to achieve his objective. Some in the world may be willing to wait to see their strategic plans carried out over this longer period of time.

Scenario Two: BW attack on forces in the Middle East

The goal of this attack would be to ultimately have the United States withdraw its military forces from the region and/or reduce its aid to allies like Israel. The Middle East has the highest number of states with biological weapons of any region in the world. According to the Center for Nonproliferation Studies at the Monterey Institute of International Studies there are 11 states with suspected or confirmed offensive biological programs. Of these, six reside in the Middle East.[29] Additionally, more weapons of mass destruction (WMD) attacks have occurred in the Middle East than any other region. Although most of the examples in Table 2 are chemical warfare (CW) and not biological, chemical and biological warfare (CBW) use clearly indicates that this region of the world has an entirely different view about the use of weapons considered taboo by much of the rest of the world. Table 2 shows some regional highlights.

Table 2. Example of CBW Uses in the Middle East

Date	Country	Specific CB Agent	Description
1917	Iraq	Glanders	In 1917, German agents infected over 4,500 British pack animals in Mesopotamia
1920-30	Morocco	Mustard	Spain employed mustard shells and bombs against the Riff tribes.
1930	Libya	Mustard	Italy dropped 24 mustard gas bombs on an oasis in 1930 fighting Libyan rebels.
1935-36	Ethiopia	Mustard, tear gas, and various other agents	Benito Mussolini authorized use of chemical weapons on 16 Dec 1935, with the first attack on 23 Dec when Italian AF planes sprayed mustard gas and drop bombs filled with mustard agent on Ethiopian soldiers and civilians. Italian forces repeatedly attacked Ethiopian soldiers and civilians with mustard gas and used tear gas, sneezing gas, and various asphyxiating agents. A letter from the Ethiopian delegate to the League of Nations, dated 13 Apr 1936, alleges Italy made 20 "poison gas attacks," with mustard gas being used frequently.
1930s	Kurdistan	Lung Irr.	Soviet Union was accused of using lung irritants against Kurdistan tribesmen.
1944	Israel / Palestine	Unknown	Plot by Grand Mufti of Jerusalem and Germans to poison wells in Tel Aviv. Ten containers was discovered with enough poison to kill 10,000 people.
1957	Oman	BW	Britain was accused of using biological warfare agents in Oman.
1963-67	Yemen	Mustard, Phosgene, and tear gas, possibly nerve gas	Egypt employed chemical weapons against royalist forces in the Yemen civil war. Egypt used Soviet-built aerial bombs to deliver phosgene and aerial bombs as well as artillery shells abandoned by British forces after World War I to deliver mustard gas. According to chemical weapons expert Milton Leitenberg, some of nerve agent reportedly used by Egyptian forces may actually have consisted of hand grenades fitted with containers of organophosphate pesticides. This incident is sometimes referred to as the first use of nerve gases, but according to some reports this is unsubstantiated.
1965	Iraq	Unknown	In May 1965 at a press conference in London, a spokesman for the Kurdish Democratic Party stated that on at least two occasions during the previous six weeks the Iraqi army had used gas against Kurdish forces.
1984-88	Iran / Iraq	Sarin, Tabun & Sulfur Mustard	During the 1980s Iran-Iraq War, Iraq repeatedly attacked Iranian troops with CW agents. The first allegation of Iraqi CW attacks was in Nov 1980. In Nov 1983, Iran made its first official complaint to the UN regarding Iraqi CW attacks. Iraq was confirmed to have used mustard/nerve agents against Iranian forces from 1983-1988. Iran is believed to have conducted initial CW attacks by firing captured Iraqi CW munitions at Iraqi forces in 1984 or 1985. By end of the war, Iran reportedly employed domestically produced CW munitions against Iraqi soldiers. First ever use of tabun (nerve agent) on battlefield was by Iraq in 1984.
1987	Chad	Unknown	Libya reportedly used Iranian-supplied chemical weapons against Chad troops.
1988	Iraq	Hydrogen Cyanide, Mustard, Sarin, and Tabun	Iraqi warplanes attacked the Kurdish city of Halabja, Iraq, with mustard and nerve agents, killing up to 5,000 people, mostly civilians. (Following Iraqi mustard gas attacks on Halabja, fleeing Kurds may have been mistaken for Iraqi troops and bombarded with hydrogen cyanide (AC) artillery shells by Iranian forces.)
1990	Sudan	Mustard	President Omar al-Bashir's Sudanese government had been accused of producing CW with Iranian and/or Iraqi assistance. The government was accused of initiating several mustard gas attacks on civilians and Sudanese People's Liberation Army forces in the Nuba mountains region. The allegations were not independently confirmed.
1997	Jordan	Toxic gas	Israeli agents used toxic gas in assassination attempt on Hamas official in Amman.

Source: USAF Counterproliferation Center, unclassified research 2001.

So how would the BW attack be deployed in the Middle East? Keep in mind the objective is the withdrawal of the United States from the region, so there are multiple options an adversary might select. There are many possibilities, but three scenarios discussed below are illustrative of the variety of problems we may face.

One adversary option might be to use a non-lethal BW agent, perhaps VEE (Venezuelan Equine Encephalitis), on a U.S. installation making personnel sick, thereby incapacitating them, without killing them. This could be used as a "show of capability, resolve and even compassion" by the adversary. The adversary could announce what he had done after people started recovering from the disease. This would allow time to ensure its effectiveness and that deaths were minimal. If the BW attack failed, then the adversary would not lose credibility by making premature claims. If there were many unexpected deaths, then the adversary could merely remain quiet and avoid potential retaliation by the United States.

With the announcement by the group that it was responsible, it could also announce it abhors killing and would only choose killing as a last resort. The adversary could state that he has lethal BW agents but elected not to use those to avoid killing the sons and daughters of the United States, and that he only wants them out of the region.

This likely would trigger great debates in Washington, DC and eventually in Middle Eastern countries, and the U.S. Congress might pressure the President to withdraw U.S. forces. If the United States stayed in the region and a lethal attack did occur, then local populations around U.S. bases would die along with the targeted Americans. Thereafter, local governments would be under enormous pressure to ask the United States to withdraw rather than attract further BW attacks in their country.

Another adversary option would be releasing a lethal agent just outside a U.S. base so the wind would carry it away from the base. The downwind casualties would be blamed on the Americans, forming the local mistrust of the American government. This could be a particularly small attack aimed at killing as few as 20 to 50 of the local population. The responsible group would never claim credit but would inform the media and others that the United States had launched one of its own BW agents (even though the U.S. does not have any offensive BW agents).

The regional media likely would have a "heyday" with this causing a ground swell of anger against the United States. If, after several months, the United States had not elected to greatly downsize its presence in the region, another similar attack could be launched. Again, the United States would be blamed. Locals might start evacuating areas close to U.S. installations, and the U.S. presence in the region could become politically impossible to maintain. Such small scale events could be repeated over and over with lethal or non-lethal BW agents.

Another BW scenario to consider is an adversary's use of a lethal agent against a U.S. installation. The adversary would never claim credit but might release an extremely small dose of BW agent like anthrax or tularemia trying to kill perhaps two to ten Americans. This could raise fear of future lethal attacks and cause United States officials and members of the U.S. Congress to debate if the U.S. should remain in the Middle East. If a few local citizens died, the host government might also begin to be more uncomfortable with the U.S. presence, fearing that it was a magnet for such BW strikes. A single attack might not cause the U.S. to "tuck tail and run," but if repeated often enough, the United States might reconsider and withdraw its forces from harm's way.

Scenario Three: A Bioterrorist attack on a large U.S. or allied population center

The nation has learned to fear anthrax attacks since just after the September 11 attacks on the Pentagon and World Trade Center. Upon learning that some of the Al-Qa'ida terrorists had explored renting crop dusters, these important agricultural aircraft were temporarily grounded and the news media informed the public that a biological attack might occur.

Similar to the September 11 attacks, a BW attack might take place in several major U.S. cities. Anthrax has already been sent via the United States Postal Service to Senators and various news agencies. Anthrax would probably be the agent of choice in a mass casualty attempt since it is not contagious and the perpetrators would not have to worry about the disease getting back to their country. Likewise, terrorists would not even have to die because they could be vaccinated and treated with antibiotics prior to delivering the agents to protect them even if they personally got exposed. They could also easily depart the country before the first symptoms appeared defeating the ability of federal authorities to arrest

them. Five 100-pound bags of anthrax could easily be smuggled in grain sacks on one of many shipments that arrive in U.S. ports everyday. These bags could be lined with plastic so no powder was prematurely released. Three to five major cities, on the order of Houston or Los Angeles, would be targeted each only requiring a 100-pound bag. Appropriate aerosolizing devices could be easily procured in the United States to mount on an automobile, airplane, or boat.

If the correct climatic conditions were present, and if the agent was correctly manufactured and employed, hundreds of thousands would potentially become infected and die. Such a mass casualty attack would overwhelm the U.S. medical system and a human, economic, and political catastrophe would be the result.

Summary

Despite even the anthrax attacks that followed the September 11 events, many of our national leaders still do not believe that a mass casualty BW event will happen in the next 10 years. This view is based on one of the several myths discussed and such myths inhibit adequate funding of U.S. and allied bio-defense programs.

U.S. national security leaders, programs, and budgets need to focus on three scenarios outlined and on other BW possibilities and respond with a concerted bio-defense effort fueled by urgency. The counter-agroterrorism effort is woefully under-funded. This program is of extreme importance, and it needs billions of additional dollars to upgrade the protection of our agricultural industry.

United States military forces in the Middle East must be well prepared for a BW attack, but all countries in the region have a long way to go before their bio-defenses are adequate against the threat. CENTCOM and OSD have an aggressive Cooperative Defense Initiative (CDI) with allies and friends in the region designed to overcome the threat of weapons of mass destruction. Huge steps forward have already been made in preparation for a BW attack, but there is still much work ahead. Detection capabilities in the region have improved, but it still requires several hours to ascertain lab results and these are limited to just a few of the possible

BW agents. Detection capabilities are only in place on United States installations and not in the local areas. Although there is a correct emphasis on the concern for ballistic missiles within the CDI, the threat of biocruise missiles in *Assessment of the Emerging Biocruise Threat* by Kiziah may be an even more likely threat and should be addressed with equal effort.[30]

One of the most horrifying possibilities would be a coordinated simultaneous BW attack against several major U.S. or allied cities. Today those attacks could occur and we might be unaware of them until days after the attack. The results, as have been documented in a series of major exercises, would be frightening. Many hundreds of thousands could die and United States and allied societies would be thrown into chaos and panic. The United States will have to take up the yoke of preventing attacks and preparing for consequence management, managing the aftermath of such attacks, with the same vigor our nation used during the cold war. Otherwise, our national security will be jeopardized.

Myths to the contrary, the biological warfare and bioterrorist threats are real and require the full commitment of the United States and its allies to have a well-funded bio-defense effort.

Notes

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